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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/581,689	06/19/2001	Gentaro Okayasu	450101-4689	9687
20999	7590	09/30/2005	EXAMINER	
FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			SALTARELLI, DOMINIC D	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/581,689

Applicant(s)

OKAYASU ET AL.

Examiner

Dominic D. Saltarelli

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23-143 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-143 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/15/00, 5/28/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. The effective filing date of the instant application is December 21, 1998, the filing date of international application PCT/JP98/05785. The time period set for entering the national stage, namely paying the national stage fees and furnishing an English translation of the international application, is 30 months from the claimed priority date. However, the complete English translation of the international application was not provided to the office until June 19, 2001, 42 months after the claimed priority date of December 19, 1997, as outlined in the petition decision provided to the applicant on September 27, 2001.

### ***Claim Objections***

2. Claim 23 is objected to because of the following informalities: On line 8 "firs" should be changed to --first --.
3. Claim 31 is objected to because of the following informalities: On line 7 "firs" should be changed to --first --.
4. Claim 77 is objected to because of the following informalities: On line 2, "the file" should be changed to --a file--.
5. Claim 129 is objected to because of the following informalities: On line 6, "fording" should be changed to --finding--.
6. Claim 136 is objected to because of the following informalities: On line 6, "naive" should be changed to --name--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 23-143 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 23-143 contain numerous unclear recitations and awkward wording apparently due to translation. Applicant is reminded to recite any method steps intended in the form of *active* method steps. Applicant is advised to carefully review the claims for compliance with 35 U.S.C. 112, second paragraph. The art rejections found in the immediate office action are applied to applicant's claims as best understood in view of the following:

Claim 23, line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 28 recites the limitation "the plurality of control targets" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 23 indicates only one control target of the plurality available is added to the first control command.

Claim 31, lines 3-4 refer to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best

understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 36 recites the limitation "the plurality of control targets" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 31 indicates only one control target of the plurality available is added to the first control command.

Claim 39, line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 45, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 51, line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the

plurality claimed. Lines 3-4 state "a first step of receiving a first control command requesting permission of occupancy and use of the control target from a plurality of upper control terminal means" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command.

Claim 57, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 60, line 6 refers to "the identification information", and it is unclear as to which claimed instance of identification information this refers to. The examiner's best understanding is this refers the first identification information, namely the identification information of the control target for which the upper control terminal means made a request.

Claim 62, lines 1-2 refer to "the identification information", and it is unclear as to which claimed instance of identification information this refers to. The examiner's best understanding is this refers to the second "different" identification information claimed in claim 60.

Claim 63, line 2 refers to "the identification information", and it is unclear as to which claimed instance of identification information this refers to. The examiner's best understanding is this refers the first instance of identification information claimed in claim 60.

Claim 65, line 4 states "outputted from a plurality of upper control terminal means" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 73, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal

means is issuing a single first control command. Line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 74, lines 1-2 state "the control target includes a switcher" while line 4 states "the control target connected to each input section of the switcher". It is unclear if "the control target" referred to in line 4 is the control target that also *includes* the switcher, or a plurality of the other control targets not identified by the first control command. The examiner's best understanding of this claim is that the control target referred to is the one that includes the switcher in the sense that it is coupled to the switcher and is the control target identified in the first control command.

Claim 76, line 3 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to the control target included in the first control command. Line 3 states "the identification information" and it is unclear as to which of the claimed plurality of identification information this refers to. The examiner's best understanding is this refers to the identification information associated with the control target included in the first control command. Line 6 states "the identification information" and it is unclear as to which of the claimed plurality of identification information this refers to. The examiner's best understanding is this refers to the identification information associated with the



control target included in the first control command. Line 7 states “the upper control terminal means” and it is unclear as to which of the claimed plurality of upper control terminal means this refers to. The examiner’s best understanding is this refers to the upper control terminal means that issued the first control command.

Claim 77, lines 1-2 state “the identification information” and it is unclear as to which of the claimed plurality of identification information this refers to. The examiner’s best understanding is this refers to the identification information associated with the control target included in the first control command.

Claim 78, line 4 states “the control target” and it is unclear which of the claimed plurality of control targets this refers to. The examiner’s best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed. Line 4 states “outputted from a plurality of upper control terminal means” and it is unclear if this means a plurality of upper control terminal means each issue an identical first control command or if only one of the plurality issues the single first control command. The examiner’s best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command.

Claim 79, lines 1-2 state “the control target includes a switcher” while line 4 states “the control target connected to each input section of the switcher”. It is unclear if “the control target” referred to in line 4 is the control target that also *includes* the switcher, or a plurality of the other control targets not identified by

Art Unit: 2611

the first control command. The examiner's best understanding of this claim is the control target refers to the control target that includes the switcher in the sense that it is coupled to the input of the switcher and is the control target identified by the first control command.

Claim 81, lines 5-6 state "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding of this claim is the control target refers to the "another one of the control targets" (line 2). Line 6 states "the identification information" and it is unclear as to which of the claimed plurality of identification information this refers to. The examiner's best understanding is this refers to the identification information associated with the "another one of the control targets".

Claim 82, lines 1-2 state "the identification information" and it is unclear as to which of the claimed plurality of identification information this refers to. The examiner's best understanding is this refers to the identification information associated with the control target included in the first control command.

Claim 83, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 refers to "the control target" and it is unclear as to which of the claimed plurality of control targets this

refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 85, lines 4-6 state "issues stream identification information provided for each of the control targets to the upper control terminal means" and it is unclear if this means stream information for all of the control targets is provided to the upper control terminal means or if it means each control target has stream information provided for it, and the upper control terminal means is issued the stream identification information for the control target requested in the first control command. The examiner's best understanding of this claim is that the upper control terminal means is issued the stream identification information specifically for the control target requested in the first control command.

Claim 86 recites the limitation "the stream identification information" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 89, line 5 states "without issuing the second control command", and it is unclear whether this means the control target does not issue the second control command or if this means that no second control command is sent at all. The examiner's best understanding of this claim is that the control target does not issue the second control command.

Claim 90, line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed. Lines 7-8 state "the first identification information

corresponding to each of the control targets", and it is unclear as to whether this refers to an identification information corresponding only to the requested control target, wherein each control target has a unique first identification information corresponding to it, or if it refers to a first identification information that corresponds to all of the control targets. The examiner's best understanding of this claim is that each the identification information corresponds only to the requested control target.

Claim 93 recites the limitation "the stream identification information" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 95 recites the limitation "the second identification information" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 96, lines 4-5 state "the use permission flag with reference to the management table without issuing the second control command at the third step" lacks any active limitation, and thus the examiner's best understanding of this claim is that this cannot be considered an active limitation needing to be met by the prior art.

Claim 97, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target"

and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed. Line 8 states "the upper control terminal means" and it is unclear as to which of the claimed plurality of upper control terminal means this refers to. The examiner's best understanding of this claim is that this refers to any one of the other upper control terminal means which did not issue the first control command.

Claim 103, lines 3-4 state "a first step of inputting a first control command requesting permission of use of the control target from a plurality of upper control terminal means" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed. Lines 8-9 state "the upper control terminal means" and it is unclear as to which of the claimed plurality of upper control terminal means this refers to. The examiner's best understanding of this claim is that this refers to any one of the other upper control terminal means which did not issue the first control command.

Claim 109, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 114, lines 3-4 state "a first step of inputting a first control command requesting permission of use of the control target from a plurality of upper control terminal means" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 119, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one

of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 124, lines 3-4 state "a first step of inputting a first control command requesting permission of use of the control target from a plurality of upper control terminal means" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 127 recites the limitation "the fifth step" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 129, line 3 states "a plurality of upper control terminal means for issuing a first control command" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best

understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

Claim 136, lines 3-4 state "a first step of inputting a first control command requesting permission of use of the control target from a plurality of upper control terminal means" and it is unclear if this means a plurality of terminal means are each issuing an identical first control command or if only one of the plurality is issuing the single first control command. The examiner's best understanding of this claim is that only one of the plurality upper control terminal means is issuing a single first control command. Line 4 states "the control target" and it is unclear as to which of the claimed plurality of control targets this refers to. The examiner's best understanding is this refers to any one arbitrarily chosen control target of the plurality claimed.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States



Art Unit: 2611

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 23-25, 28, 29, 31-33, 36, 37, 57, 58, 60-63, 65, 66, 68-71, 73, 74, 76-79, 81-86, 89-93, 96, and 119-143 are rejected under 35 U.S.C. 102(e) as being anticipated by Raz et al. (5,913,227) [Raz].

Regarding claims 23 and 31, Raz discloses a control apparatus for controlling the state of use of a plurality of control targets (fig. 1), the apparatus comprising:

upper control terminal means (fig. 2, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command instruction reserved use of the control target ();

control target allocation control means (master host processor 10a, col. 4, lines 15-28) for inhibiting upper control terminal means except for the upper control terminal means which issued the control command, of a plurality of upper control terminal means, from using the control target of the reserved use instructed by the first control command, on the basis of the first control command from the upper control terminal means (col. 5 line 62 – col. 6 line 7).

Regarding claims 24 and 32, Raz discloses the apparatus and method of claims 23 and 31, wherein even when a second control command instructing occupancy of the control target of the reserved use instructed by the first control command is received from the upper control terminal means except for the upper control terminal means which issued the first control command, the control target

allocation control means inhibits the use by the upper control terminal means which issued the second control command (col. 6, lines 27-33).

Regarding claims 25 and 33, Raz discloses the apparatus and method of claims 24 and 31, wherein when the first control command is received from the upper control terminal means, the control target allocation control means registers information including the upper control terminal means which issued the first control command and the control target of the reserved use to a management information data base of the control target (fig. 1, table 30, col. 5 line 62 – col. 6 line 7), and when the second control command is received from the upper control command and the control target instructed by the second control command is coincident with the control target of the management information database, the control target allocation control means transmits a control command indicating failure of the second control command to the upper control terminal means which issued the second control command and thus inhibits the use by the upper control terminal means (col. 6, lines 27-33).

Regarding claims 28 and 36, Raz discloses the apparatus and method of claims 23 and 31, wherein the control target allocation control means inhibits the use of the plurality of control targets added to the first control command by the upper control terminal means except for the upper control terminal means which issued the first control command, of the plurality of upper control terminal means,

on the basis of reserved use of a group to which the plurality of control targets added to the first control command belong (an inherent feature of the Raz disclosure, because plural control targets locked by a host processor are themselves a group identified by the host processor, and use of which is inhibited to any other host processor besides the host processor which owns the group of locks on a per lock basis).

Regarding claims 29 and 37, Raz discloses the apparatus and method of claims 28 and 36, wherein the control target allocation control means has a management information database for registering information including the user of the upper control terminal means which issued the first control command, the control target name instructed by the first control command and the group name to which the plurality of control targets belong (fig. 1, table 30, col. 5 line 62 – col. 6 line 7, wherein the table records the locking information of all files, which includes the user of the upper control terminal means which issued the first control command [host processor that is the owner of a lock, col. 6, lines 1-3], control target name [file name, col. 5, lines 38-41], and group name to which the plurality of control targets belong [the identifier of the common owner of a group of locks]).

Regarding claims 57 and 65, Raz discloses a control apparatus for controlling the state of use of a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 1, host processor 10b and 10c) for issuing a first control command requesting permission of use of the control target (col. 5, lines 38-56); and

management means that receives the first control command including the control target (fig. 1, master host processor 10a) and issues identification information provided for each of the control targets to the one upper control terminal means which issued the first control command, on the basis of the first control command including at least the control target (the file access operation requested, such as a read/write operation on a particular file, inherently includes the file being operated upon, else the instruction would be meaningless, col. 6, lines 34-38).

Regarding claims 58 and 66, Raz discloses the apparatus and method of claims 57 and 65, wherein the upper control terminal means appends the identification information issued from the management means, and issues a second control command, which is a command for controlling the control target, to the management means (Raz teaches issuing a lock release command to the management means, col. 6, lines 22-27, which inherently must include the identifier of the lock being release, else the instruction would be meaningless).

Regarding claims 60 and 68, Raz disclose the apparatus and method of claims 57 and 65, wherein the management means has an identification information management database including the control target and identification information (fig. 1, table 30, col. 5 line 62 – col. 6 line 7), and identification information provided for another one of the control targets and different from the identification information is registered to an entry of identification information of the database with respect to the control target appended to the first control command (the next entry in the table describing the lock of another file), the identification information being issued to the upper control terminal means (acknowledgement information of requested locks includes the identifier of the requested file, col. 6, lines 34-38).

Regarding claims 61 and 69, Raz discloses the apparatus and method of claims 60 and 68, wherein the identification information is further registered to the identification information management database and the file name appended to the first control command is registered there to (table 30 is used for tracking and comparing locks to requests, thus includes the identifier [file name] of the lock in order to do so, col. 5 line 62 – col. 6 line 7).

Regarding claims 62 and 70, Raz discloses the apparatus and method of claims 60 and 68, wherein when the identification information is already

registered to the entry of identification information of the database with respect to the control target appended to the first control command, the management means issues error information inhibiting the permission of use to the upper control terminal means which issued the first control command (col. 6, lines 27-33).

Regarding claims 63 and 71, Raz discloses the apparatus and method of claims 62 and 70, wherein when a fourth control command indicating a command for deleting the identification information from the upper control terminal means is received, the management means deletes the identification information with respect to the first control command registered to the database (col. 6, lines 22-26).

Regarding claims 73 and 78, Raz discloses a control apparatus for controlling a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 2, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command requesting permission of use of the control target (col. 5, lines 38-56);

identification information management means (master host processor 10a, col. 4, lines 15-28) for issuing identification information (the returned acknowledgment information sent from the master to the slave processors include file identification information, col. 6, lines 34-38) provided for each of the

Art Unit: 2611

control targets (each file has an associated file name by which it is identified) to the one upper control terminal means which issued the first control command, on the basis of the first control command including at least the control target (col. 6, lines 34-38);

connection information management means for managing connection information of the control target (col. 5, lines 17-25);

control information processing means (fig. 1, common data storage 12) for, when a second control command indicating connection of the control target to which the identification information issued by the identification information management means is appended is received from the upper control terminal means (file access request from the host processor, col. 6, lines 16-21), issuing a third control command indicating a connection instruction to the control target indicated by the second control command on the basis of the management information of the connection information management means (once access is authorized, a host then accesses the file designated by the acknowledgment message received, col. 6, lines 8-16, and the third control command is generated by the common data storage system 12 for enabling the file access request [the second control command] generated by, and received from, the requesting host processor).

Regarding claims 74 and 79, Raz discloses the apparatus and method of claims 73 and 78, wherein the control target includes a switcher having a plurality

of input sections and a plurality of output sections (an inherent feature of the common data storage system 12 in fig. 1, because a switching means with plural inputs and outputs is necessary to dynamically connect the storage units 14 and 16 with the proper communication channels 13(a)-13(n), col. 3, lines 45-67, for allowing the host processors to access files on the storage system, col. 6, lines 16-21), and the second control command includes first identification information issued by the upper control terminal means with respect to the control target connected to each input second of the switcher and second identification information issued by the upper control terminal means with respect to the output section of the switcher (these are included inherently, because a file access request from a host processor must include information pertaining to both the file being accessed and some form of identifier that specifies the recipient of the file being accessed, allowing the common data storage system to retrieve the correct file and route it to the correct recipient).

Regarding claims 76 and 81, Raz discloses the apparatus and method of claims 73 and 78, wherein the identification information management means has an identification information management table (fig. 1, table 30, col. 5 line 62 – col. 6 line 7) including the control target and the identification information (table record the ownership of locks on per file basis), and identification information provided for another one of the control targets and different from the identification information is registered to an entry of identification information of the



management table with respect to the control target appended to the first control command (the granting of a second lock after the first for a different file would be the next entry in the table, and thus the record of this lock, including the identification information, would be entered into the table in the next available field, with respect to the control target information in the first field of the table), the identification information being issued to the upper control terminal means (the host processor which makes a request for this second lock would receive the same type of acknowledgement messages as the host processor which made the first lock request, col. 6, lines 16-38).

Regarding claims 77 and 82, Raz discloses the apparatus and method of claims 76 and 81, wherein the identification information is registered to the identification information management table, and the file name appended to the first control command registered thereto (col. 5 line 62 – col. 6 line 15).

Regarding claims 83 and 90, Raz discloses a control apparatus for controlling a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 2, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command requesting permission of use of the control target (col. 5, lines 38-56);

management means (fig. 1, master host processor 10a) having a control target management table including the control target and first identification

information corresponding to each of the control targets (fig. 1, table 30, col. 5 line 62 – col. 6 line 7), for issuing a second control command requesting permission of use of the control target including the first identification information from the management table on the basis of the first control command including the control target (the agent issues a command to check the table for permission rights for granting a lock for a file); and

control target control means for notifying of a result with respect to the permission of use of the control target on the basis of the second control command (the affirmation of a granted or denied lock sent back to the agent upon querying the table, which instructs the agent whether to send an affirmation or denial to the requesting host processor, col. 6, lines 8-16);

the management means setting a use permission flag with respect to the control target included in the management table on the basis of the result from the control target control means (establishment of the lock updates the table with the new lock parameters).

Regarding claims 84 and 91, Raz discloses the apparatus and method of claims 83 and 90, wherein the management table further includes an entry to which second identification information corresponding to the control target is registered when the control target cannot be uniquely identified by the first identification information alone, and when issuing to the control target control means the second control command with respect to the control target which

cannot be uniquely identified by the first identification information alone, the management means issues the second control command including the second identification information as well as the first identification information to the control target control means (identifying particular files also includes the volume on which the file is located, col. 7, lines 5-10).

Regarding claims 85 and 92, Raz discloses the apparatus and method of claims 83 and 90, wherein when the control target control means has notified of a result indicating permission of use of the control target with respect to the second control command, the management means sets information indicating permission of use to the use permission flag of the management table (as described above) and issues stream identification information [which is provided for each of the control targets] to the upper control terminal means (col. 6, lines 8-21 and col. 6, lines 34-38).

Regarding claims 86 and 93, Raz discloses the apparatus and method of claims 83 and 90, wherein when the stream identification information is received from the management means, the upper control terminal means issues to the management means a control command with respect to the control target using the stream identification information (file access operation carried out by the requesting host processor, col. 6, lines 16-21).

Regarding claims 89 and 96, Raz discloses the apparatus of claim 83, wherein the control target includes switcher having a plurality of input section and a plurality of output section for switching the input sections and output sections to output from one output section data inputted from one input section (an inherent feature of the common data storage system 12 in fig. 1, because a switching means with plural inputs and outputs is necessary to dynamically connect the storage units 14 and 16 with the proper communication channels 13(a)-13(n), col. 3, lines 45-67, for allowing the host processors to access files on the storage system, col. 6, lines 16-21), and sets the user permission flag with reference to the management table (when the file is available, its available state sets the user permission flag for allowing a lock, col. 5 line 62 – col. 6 line 7) without issuing the second control command (the management means issues the second control command, not the control target) when the management means has received the first control command requesting the permission of use of the output section of the switcher.

Regarding claims 119 and 124, Raz discloses a control apparatus for controlling a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 2, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command requesting permission of use of the control target (col. 5, lines 38-56);

management means (fig. 1, master host processor 10a) for, when the first control command including the file name of a file stored in one of the control targets is inputted, finding the control targets to which the file to be outputted from the file name and selecting the control target other than the control target in an error and warning state, of the control targets that are found (the agent locates the disks from where the file may be outputted, and grants a lock when an available disk is located for use by the requesting host processor, col. 5 line 62 – col. 6 line 10).

Regarding claims 120 and 125, Raz discloses the apparatus and method of claims 119 and 124, wherein the management means issues a second control command indicating permission of use to the upper control terminal means which issued the first control command to the selected control target (depending on whether permission [lock] is granted, the agent sends an acknowledgement regarding whether permission was granted, col. 6, lines 16-33).

Regarding claims 121 and 126, Raz discloses the apparatus and method of claims 120 and 124, wherein when there is no control target other than the control target in the error and warning state of the control targets that are found, the management means selects the control target in the warning state alone (detection of a conflicting lock causes the agent to select the resource in a

Art Unit: 2611

warning state, providing a message to the requesting terminal of a denied request, col. 6, lines 27-33).

Regarding claims 122 and 127, Raz discloses the apparatus and method of claims 121 and 125, wherein the management means issues a second control command indicating permission of use to the upper control terminal means which issued the first control command to the selected control target (depending on whether permission [lock] is granted, the agent sends an acknowledgement regarding whether permission was granted, col. 6, lines 16-33).

Regarding claims 123 and 128, Raz discloses the apparatus and method of claims 119 and 129, wherein the management means finds a storage device in which the file is stored from the file name included in the first control command (col. 7, lines 5-10), and finds the control target connected to the storage device from the storage device (which is necessary for accessing the file, col. 6, lines 8-15).

Regarding claims 129, 131, 136, and 138, Raz discloses a control apparatus for controlling a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 2, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command requesting permission of use of the control target (col. 5, lines 38-56);

management means (fig. 1, master host processor 10a) to which the first control command including the file name of a file stored in one of the control targets is inputted, for finding the control targets to which the file to be outputted from the file name and selecting the control target which is not reserved as a reservation command is not issued and which is in a non-use state (the agent locates the disks from where the file may be outputted, and grants a lock when an available disk [non-conflicting lock] is located for use by the requesting host processor, col. 5 line 62 – col. 6 line 10).

Regarding claims 130, 132, 137, and 139, Raz discloses the apparatus and method of claims 129, 131, 136, and 138, wherein the management means issues a second control command indicating permission of use to the upper control terminal means which issued the first control command to the selected control target (depending on whether permission [lock] is granted, the agent sends an acknowledgement regarding whether permission was granted, col. 6, lines 16-33).

Regarding claims 133 and 140, Raz discloses the apparatus and method of claims 132 and 138, wherein when there are a plurality of control targets that

are selected, the management means selects the control target which is not in a warning state from the selected control targets (when attempting to fulfill a host processor request, col. 5, lines 38-56, the agent will select an available resource that is not in use [non-conflicting lock], col. 5 line 62 – col. 6 line 7).

Regarding claims 134 and 141, Raz discloses the apparatus and method of claims 133 and 140, wherein the management means issues a second control command indicating permission of use to the upper control terminal means which issued the first control command to the selected control target (depending on whether permission [lock] is granted, the agent sends an acknowledgement regarding whether permission was granted, col. 6, lines 16-33).

Regarding claims 135 and 142, Raz discloses the apparatus and method of claims 133 and 140, wherein when there are a plurality of control targets that are selected, the management means selects the control target in a reserved state alone to which the first control command is issued (selecting a control target in a reserved state alone is granting an exclusive lock on a file, col. 4, lines 28-39).

Regarding claim 143, Raz discloses the method of claim 142, further comprising a tenth step of issuing a second control command indicating permission of use to the upper control terminal means which issued the first



control command to the control target selected at the seventh step (depending on whether permission [lock] is granted, the agent sends an acknowledgement regarding whether permission was granted, col. 6, lines 16-33).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 26, 27, 34, 35, 39-43, 45-48, and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz in view of Davison (6,430,592).

Regarding claims 26 and 34, Raz discloses the apparatus and method of claims 23 and 31, but fails to disclose wherein when the first control command instructing reservation of the same control target is received from the plurality of upper control terminal means, the control target allocation control means inhibits the use by the upper control terminal means except for the upper control terminal means which issued the first control command of the highest priority, on the basis of priority added to the first control command.

In an analogous art, Davison teaches assigning exclusive access to a resource to a requesting user based on a priority associated with the request (the identity of the user necessary in a request defines the priority level, either

explicitly or implicitly, col. 4, lines 50-56), for the benefit of granting resource usage first to more important (higher priority) users.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz to include granting access to control targets to the requesting terminal with the highest priority based on priority information added to the first control command, as taught by Davison, for the benefit of granting resource usage first to more important (higher priority) users, such as giving priority to customers who have paid a premium for service access, or giving priority to administrators or managers when contenting with requests from other users.

Regarding claims 27 and 35, Raz and Davison disclose the apparatus and method of claims 26 and 34, wherein the control target allocation control means has a management information database (Raz, fig. 1, table 30, col. 5 line 62 – col. 6 line 7) for registering information including the terminal user of the upper control terminal means which issued the first control command, the control target of the reserved use and the priority added to the first control command (the table of locks [Raz, fig. 1, table 30] inherently also includes the user information associated with the reserved target in addition to the reserved target, because user information is the priority information, as taught by Davison above, and is thus necessarily included in order to compare priorities), and inhibits the use by the upper control terminal means except for the upper control terminal means

which issued the first control command of the highest priority with reference to the management information database (Raz, col. 6, lines 27-33).

Regarding claim 39, Raz discloses a control apparatus for controlling the state of use of a plurality of control targets (fig. 1), the apparatus comprising:

upper control terminal means (fig. 1, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command instruction reserved use of the control target (col. 5, lines 38-56);

control target allocation control means (fig. 1, master host processor 10a) for inhibiting upper control terminal means except for the upper control terminal means which issued the control command, of a plurality of upper control terminal means, from using the control target of the reserved use instructed by the first control command, on the basis of the first control command from the upper control terminal means (col. 6, lines 27-33).

Raz fails to disclose the control target allocation control means inhibits upper control terminal means from using the control target on the basis of priority added to the first control command.

In an analogous art, Davison teaches assigning exclusive access to a resource to a requesting user based on a priority associated with the request (the identity of the user necessary in a request defines the priority level, either explicitly or implicitly, col. 4, lines 50-56), for the benefit of granting resource usage first to more important (higher priority) users.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Raz to include granting access to control targets to the requesting terminal with the highest priority based on priority information added to the first control command, as taught by Davison, for the benefit of granting resource usage first to more important (higher priority) users, such as giving priority to customers who have paid a premium for service access, or giving priority to administrators or managers when contending with requests from other users.

Regarding claim 40, Raz and Davison disclose the apparatus of claim 39, wherein when the first control command instruction permission of occupancy and use of the same control target is received from the plurality of upper control terminal means, the control target allocation control means inhibits the occupancy and use of the control target by the upper control terminal means except for the upper control terminal means which issued the first control command of the highest priority on the basis of the priority (Davison teaches always granting use to the highest priority user, col. 4, lines 50-53).

Regarding claim 41, Raz and Davison disclose the apparatus of claim 40, wherein the control target allocation control means has an occupancy management information database (Raz, fig. 1, table 30) constituted by the control target for which a notification of permission of occupancy is issued, the

upper control terminal means which issued the first control command and the priority added to the first control command (the table of locks [Raz, fig. 1, table 30] inherently also includes the user information associated with the reserved target in addition to the reserved target, because user information is the priority information, as taught by Davison above, and is thus necessarily included in order to compare priorities), and when the first control command instruction permission of occupancy of the same control target as the control target is registered to the database, of the plurality of upper control terminal means, the control target allocation control means compares the priority added to the first control command (Davison, teaches comparing priority of user requests to determine resource allocation, col. 4, lines 50-53) and inhibits the use by the upper control terminal means except for the upper control terminal means which issued the first control command of the highest priority, from using the control target (Raz, col. 6, lines 27-33).

Regarding claim 42, Raz and Davison disclose the apparatus of claim 41, wherein the control target allocation control means compares the priority (Davison, col. 4, lines 50-53) on the basis of the database (Raz, col. 5 line 62 – col. 6 line 7), and when the priority registered to the database is lower than the priority added to the upper control terminal means which issued the first control command, the control target allocation control means issued a control command indication cancel of the occupancy and use to the upper control terminal means

having the priority registered to the database (Davison teaches assigning the resource to the requesting user with the highest priority even if a lower priority user is occupying the resource, col. 4, lines 50-53).

Regarding claim 43, Raz and Davison disclose the apparatus of claim 41, wherein when a second control command instructing permission of occupancy and use of the plurality of control targets is received from the upper control terminal means, the control target allocation control means compares the lowest priority of the priorities registered to the database of the plurality of control targets instructed by the second control command, of the plurality of control targets registered to the database, with the priority added to the second control command, and inhibits the upper control terminal means except for the upper control terminal means which issued the control command of the higher priority, from using the control targets (Davison teaches assigning any requested resources to the higher priority requester, displacing requests from lower priority users, col. 4, lines 50-53).

Regarding claims 45 and 51, Raz discloses a control apparatus for controlling the state of use of a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 1, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command requesting permission of occupancy and use of the control target (col. 5, lines 38-56); and

allocation control means (fig. 1, master host processor 10a) for issuing, to one of the plurality of upper control terminal means a notification of permission of use with respect to the control target indicated by the first control command (col. 6, lines 8-21).

Raz fails to disclose assigning occupancy on the basis of the priority given to the first control command from the plurality of upper control terminal means.

In an analogous art, Davison teaches assigning exclusive access to a resource to a requesting user based on a priority associated with the request (the identity of the user necessary in a request defines the priority level, either explicitly or implicitly, col. 4, lines 50-56), for the benefit of granting resource usage first to more important (higher priority) users.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz to include assigning occupancy on the basis of the priority given to the first control command from the plurality of upper control terminal means, as taught by Davison, for the benefit of granting resource usage first to more important (higher priority) users, such as giving priority to customers who have paid a premium for service access, or giving priority to administrators or managers when contenting with requests from other users.

Regarding claims 46 and 52, Raz and Davison disclose the apparatus and method of claims 45 and 51, wherein when the first control command requesting the permission of use with respect to the same control target is received from the plurality of upper control means, the allocation control means issues the notification of permission to the upper control terminal means which issued the first control command of the highest priority on the basis of the priority (Davison teaches always granting use to the highest priority user, col. 4, lines 50-53).

Regarding claims 47 and 53, Raz and Davison disclose the apparatus and method of claims 46 and 52, wherein Raz teaches the allocation control means includes an occupancy management information database including the control target for which the notification of permission is issued, the upper control terminal means which issued the first control command, and the priority given to the first control command (the table of locks [Raz, fig. 1, table 30] inherently also includes the user information associated with the reserved target in addition to the reserved target, because user information is the priority information, as taught by Davison above, and is thus necessarily included in order to compare priorities), and when a second control command requesting permission of use with respect to the control target registered to the database is received from the upper control terminal means other than the upper control terminal means registered to the occupancy management information database, the allocation control means,



compares the priority given to the first control command issued by the upper control terminal means with respect to the control target registered to the database and the priority given to the second control command, and issues the notification of permission to the upper control terminal means which issued the first or second control command of the higher priority (Davison teaches assigning any requested resources to the higher priority requester, displacing requests from lower priority users if necessary, col. 4, lines 50-53).

Regarding claims 48 and 54, Raz and Davison disclose the apparatus of claims 47 and 53, but fail to disclose wherein the allocation control means compares the priority, and issues a notification of cancel for canceling the permission of occupancy and use to the control terminal means which issued the first control command when the priority given to the first control command is lower than the priority given to the second control command.

However, Raz does teach sending notifications of denied requests to the requesting clients (col. 6, lines 27-33), strongly suggesting that the apparatus and method of Raz and Davison should be modified such that if a client is denied access to a resource after having been granted access, the apparatus needs to inform the client of this change in status to ensure smooth operation of said apparatus.

Therefore it would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method of Raz and Davison to include

issuance of a notification of cancel for canceling the permission of occupancy and use to the control terminal means which issued the first control command, as suggested by Raz, resulting in issuance of a notification of cancel for canceling the permission of occupancy and use to the control terminal means which issued the first control command when the priority given to the first control command is lower than the priority given to the second control command. This provides the benefit of informing clients of status changes in occupancy assignments.

13. Claim 30, 38, 64, 72, 87, 88, 94, and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz in view of Voeten et al. (5,528,282) [Voeten].

Regarding claims 30 and 38, Raz discloses the apparatus and method of claims 23 and 31, but fails to disclose the control target includes each recording medium which is non-linearly accessible to each input/output processing means constituting a video server, and each input channel to which data including a plurality of video and or audio data inputted from outside or outputted from the video server are inputted and each output channel for outputting the data to be outputted to outside or to be outputted to the video server, the input channel and output channel constituting switching means.

In an analogous art, Voeten teaches a video on demand system (col. 1, lines 5-15) that includes recording medium (fig. 1, hard disks HDA) that are non-linearly accessible to each input/output processing means constituting a video server (col. 6, lines 10-21, wherein the video server includes server controller

DSC for management and broadband switch BBS for broadband routing of packets to and from the server and a plurality of media adapter modules MAM each associated with a program control module PCM, constituting a plurality of input/output processing means), and each input channel to which data including a plurality of video and audio data (video signals, col. 6, lines 44-47 and col. 8 line 62 – col. 9 line 3) inputted from outside (uploaded to the video server, col. 8 line 62 – col. 9 line 3) or outputted from the video server (in response to a user request, col. 6 line 44 – col. 7 line 4) and each output channel for outputting the data to be outputted to outside (in response to a user request, col. 6 line 44 – col. 7 line 4) or outputted to the video server (when uploading video signals to the video server, col. 8 line 62 – col. 9 line 3), the input channel and output channel constituting a switching means (fig. 1, BBS, having input and output ports for communications between the video server and user stations, col. 6, lines 10-21).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method of Raz to include recording media which are non-linearly accessible to each input/output processing means constituting a video server, and each input channel to which data including a plurality of video and or audio data inputted from outside or outputted from the video server are inputted and each output channel for outputting the data to be outputted to outside or to be outputted to the video server, the input channel and output channel constituting switching means, as taught by Voeten, for the benefit of providing a dynamic video on demand service to users.

Regarding claims 64 and 72, Raz discloses the apparatus and method of claims 57 and 65, but fail to disclose the control targets are each input/output processing means of a video server adapted for recording data to and reproducing data from a non-linearly accessible recording medium, and each input section and output section each of switchers to which the data inputted from outside or outputted from each input/output processing means of the video server is inputted or from which the data is outputted to outside or inputted to each input/output processing means of the video server.

In an analogous art, Voeten teaches a video on demand system (col. 1, lines 5-15) that includes a recording medium (fig. 1, hard disks HDA) that is non-linearly accessible to each input/output processing means constituting a video server (col. 6, lines 10-21, wherein the video server includes server controller DSC for management and broadband switch BBS for broadband routing of packets to and from the server and a plurality of media adapter modules MAM each associated with a program control module PCM, constituting a plurality of input/output processing means), and each input channel to which data including a plurality of video and audio data (video signals, col. 6, lines 44-47 and col. 8 line 62 – col. 9 line 3) inputted from outside (uploaded to the video server, col. 8 line 62 – col. 9 line 3) or outputted from the video server (in response to a user request, col. 6 line 44 – col. 7 line 4) and each output channel for outputting the data to be outputted to outside (in response to a user request, col. 6 line 44 – col.

7 line 4) or outputted to the video server (when uploading video signals to the video server, col. 8 line 62 – col. 9 line 3), the input channel and output channel constituting a switching means (fig. 1, BBS, having input and output ports for communications between the video server and user stations, col. 6, lines 10-21).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method of Raz to include input/output processing means of a video server adapted for recording data to and reproducing data from a non-linearly accessible recording medium, and each input section and output section each of switchers to which the data inputted from outside or outputted from each input/output processing means of the video server is inputted or from which the data is outputted to outside or inputted to each input/output processing means of the video server, as taught by Voeten, for the benefit of providing a dynamic video on demand service to users.

Regarding claims 87 and 94, Raz discloses the apparatus and method of claims 84 and 90, but fails to disclose the control target includes a video server having a plurality of non-linearly accessible recording media and a plurality of input/output processing means for accessing and reading the data recorded on the recording medium in the tune slot and then processing the data, and the control target identified by the second identification information includes each input/output processing means and each of the recording media of the video server.

In an analogous art, Voeten teaches a video on demand system (col. 1, lines 5-15) that includes recording media (fig. 1, hard disks HDA) that are non-linearly accessible to each input/output processing means constituting a video server (col. 6, lines 10-21, wherein the video server includes server controller DSC for management and broadband switch BBS for broadband routing of packets to and from the server and a plurality of media adapter modules MAM each associated with a program control module PCM, constituting a plurality of input/output processing means), the input/output processing means for accessing and reading the data recorded on the recording medium in a tune slot and then processing the data (in response to a user request, a particular video file is accesses and placed upon the bandwidth [tune slot] reserved for such, col. 6, lines 44-61).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method of Raz to include a video server having a plurality of non-linearly accessible recording media and a plurality of input/output processing means for accessing and reading the data recorded on the recording medium in the tune slot and then processing the data, as taught by Voeten, wherein the control target identified by the second identification information would then include each input/output processing means and each of the recording media of the video server, providing the benefit of a dynamic video on demand service to users.

Regarding claims 88 and 95, Raz and Voeten disclose the apparatus of claim 87, wherein the non-linearly accessible recording medium is a hard disk (Voeten, col. 6, lines 19-20) and each recording medium identified by the second identification information is a hard disk drive (Raz teaches the second identification information is the volume identifier, which identifies the particular drive upon which a file resides, col. 7, lines 5-10).

14. Claims 44, 50, and 56 rejected under 35 U.S.C. 103(a) as being unpatentable over Raz and Davison as applied to claims 39, 47, and 51 above, and further in view of Voeten.

Regarding claim 44, Raz and Davison disclose the apparatus of claim 39, but fails to disclose the control target includes each recording medium which is non-linearly accessible to each input/output processing means constituting a video server, and each input channel to which data including a plurality of video and or audio data inputted from outside or outputted from the video server are inputted and each output channel for outputting the data to be outputted to outside or to be outputted to the video server, the input channel and output channel constituting switching means.

In an analogous art, Voeten teaches a video on demand system (col. 1, lines 5-15) that includes recording medium (fig. 1, hard disks HDA) that are non-linearly accessible to each input/output processing means constituting a video server (col. 6, lines 10-21, wherein the video server includes server controller

DSC for management and broadband switch BBS for broadband routing of packets to and from the server and a plurality of media adapter modules MAM each associated with a program control module PCM, constituting a plurality of input/output processing means), and each input channel to which data including a plurality of video and audio data (video signals, col. 6, lines 44-47 and col. 8 line 62 – col. 9 line 3) inputted from outside (uploaded to the video server, col. 8 line 62 – col. 9 line 3) or outputted from the video server (in response to a user request, col. 6 line 44 – col. 7 line 4) and each output channel for outputting the data to be outputted to outside (in response to a user request, col. 6 line 44 – col. 7 line 4) or outputted to the video server (when uploading video signals to the video server, col. 8 line 62 – col. 9 line 3), the input channel and output channel constituting a switching means (fig. 1, BBS, having input and output ports for communications between the video server and user stations, col. 6, lines 10-21).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus of Raz and Davison to include recording media which are non-linearly accessible to each input/output processing means constituting a video server, and each input channel to which data including a plurality of video and or audio data inputted from outside or outputted from the video server are inputted and each output channel for outputting the data to be outputted to outside or to be outputted to the video server, the input channel and output channel constituting switching means, as taught by Voeten, for the benefit of providing a dynamic video on demand service to users.



Regarding claims 50 and 56, Raz and Davison disclose the apparatus and method of claims 47 and 51, but fail to disclose the control targets include a video server including a plurality of input/output processing means and a non-linearly accessible recording medium so that one input/output processing means can access the recording medium in an allocated time slot, and a switcher including a plurality of input channels to which a plurality of data including video and audio data are inputted from outside or outputted from the video server are inputted and a plurality of output channels for outputting the data to be outputted to outside or to the video server.

In an analogous art, Voeten teaches a video on demand system (col. 1, lines 5-15) that includes a recording medium (fig. 1, hard disks HDA) that is non-linearly accessible to each input/output processing means constituting a video server (col. 6, lines 10-21, wherein the video server includes server controller DSC for management and broadband switch BBS for broadband routing of packets to and from the server and a plurality of media adapter modules MAM each associated with a program control module PCM, constituting a plurality of input/output processing means), and each input channel to which data including a plurality of video and audio data (video signals, col. 6, lines 44-47 and col. 8 line 62 – col. 9 line 3) inputted from outside (uploaded to the video server, col. 8 line 62 – col. 9 line 3) or outputted from the video server (in response to a user request, col. 6 line 44 – col. 7 line 4) and each output channel for outputting the

data to be outputted to outside (in response to a user request, col. 6 line 44 – col. 7 line 4) or outputted to the video server (when uploading video signals to the video server, col. 8 line 62 – col. 9 line 3), the input channel and output channel constituting a switching means (fig. 1, BBS, having input and output ports for communications between the video server and user stations, col. 6, lines 10-21).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method of Raz and Davison to include a recording medium that is non-linearly accessible to each input/output processing means constituting a video server, and each input channel to which data including a plurality of video and or audio data inputted from outside or outputted from the video server are inputted and each output channel for outputting the data to be outputted to outside or to be outputted to the video server, the input channel and output channel constituting switching means, as taught by Voeten, for the benefit of providing a dynamic video on demand service to users.

15. Claims 49 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz and Davison as applied to claims 46 and 53 above, and further in view of Dewey et al. (5,301,324) [Dewey].

Regarding claims 49 and 55, Raz and Davison disclose the apparatus and method of claims 46 and 53, but fail to disclose wherein when a third control command requesting permission of occupancy and use with respect to the plurality of control targets is received from the upper control terminal means, the

allocation control means compares the lowest priority of the plurality of control targets registered to the database and the priority given to the third control command, and issues the notification of permission to the upper control terminal means which issued the third control command when the priority given to the third control command is higher.

In an analogous art, Dewey teaches displacing the lowest priority task (referred to as work units, col. 4, lines 47-68) of a plurality of running tasks in centrally controlled computing environment by comparing the priorities associated with running tasks and “bumping” the task with the lowest priority in order to grant the use of the resource to a newly received task (col. 5 line 41 – col. 6 line 14), for the benefit of maintaining a high level of performance in the system (col. 2, lines 33-39).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz and Davison to include displacing the lowest priority of a plurality of control targets with a third control command (lowest priority “lock” is reassigned to the new request) when a third control command requesting permission of occupancy and use with respect to the plurality of control targets is received, as taught by Dewey, wherein the notification of permission (as taught by Raz) is then sent to the upper control terminal means that issued the third control command, for the benefit of maintaining a high level of performance in the system by ensuring that all the highest priority requests are granted.

16. Claims 59 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz.

Regarding claims 59 and 67, Raz discloses the apparatus and method of claims 58 and 65, wherein the first control command further includes the file name of a file (the control commands are file access requests, col. 5, lines 38-57) to be inputted or outputted from the control target, and the management means issues to the control target a third command for causing the control target to control the file on the basis of the second control command (the agent opens the file for the requesting host processor, col. 6, lines 8-15).

Raz fails to disclose the file includes video and/or audio data.

Examiner takes official notice that it is notoriously well known to access video and/or audio files, such as accessing multimedia content for editing or viewer enjoyment.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz to include video and/or audio data, for the benefit of accessing multimedia content for editing by a content provider or enjoyment by a viewer.

17. Claims 75 and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz in view of Arsenault et al. (6,278,717) [Arsenault].

Regarding claims 75 and 80, Raz discloses the apparatus and method of claims 74 and 79, but fails to disclose the connection management means has a connection point table including information related to each input section of the switcher, the control target connected to each input section of the switcher, and information related to each output section of the switcher, and issues the third control command including the information related to the input section and the information related to the output section to the control target included in the first control command with reference to the connection point table from the second control command, the switcher having its input sections and output section controlled for connection on the basis of the information related to the input section and the information related to the output section included in the third control command.

In an analogous art, Arsenault teaches controlling the allocation of resources in a network (fig. 1, col. 10 line 62 – col. 11 line 15) using an allocation table (map 30, col. 11, lines 16-21), wherein said allocation table includes information related to the input and output sections of a switching means which routes data and information related to the input data streams which are being routed through said switching means (col. 11, lines 16-47, wherein the map is utilized by the processor 15 in conjunction with a controllable matrix switch to allocate particular input data streams to uplink broadcast resources, thus the map provides to the processor information relating to said input data stream and input/output information relating to the controllable matrix switch to enable the

processor to establish a circuit path through said switch between the input data stream and the broadcast resource), for the benefit of avoiding duplication of broadcast resources by mapping resources using an allocation table that includes both resource allocation information and information that describes the data stream being broadcast (col. 16, lines 38-49).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz to include a connection point table (allocation table, or "map") including information related to each input section of the switcher (input ports of the controllable matrix switch), the control target connected to each input section of the switcher (input data streams), and information related to each output section of the switcher (output ports of the controllable matrix switch connected to the broadcast resources), and issues the third control command including the information related to the input section and the information related to the output section to the control target included in the first control command with reference to the connection point table from the second control command, the switcher having its input sections and output section controlled for connection on the basis of the information related to the input section and the information related to the output section included in the third control command (the process of allocating resources to a data stream under control of the processor), as taught by Arsenault, for the benefit of avoiding duplication of output resources by mapping said resources using an allocation

table that includes both resource allocation information and information that describes the control target being accessed.

18. Claims 97, 98, 102-104, and 108-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz in view of Dixon et al. (5,935,206) [Dixon].

Regarding claims 97, 103, 109, and 114, Raz discloses a control apparatus for controlling a plurality of control targets (fig. 1), the apparatus comprising:

a plurality of upper control terminal means (fig. 1, host processors 10b and 10c, col. 3, lines 45-62) for issuing a first control command requesting permission of use of the control target (col. 5, lines 38-56);

management means (fig. 1, master host processor 10a) to which the first control command including the file name of a file stored in one of the control targets is inputted (col. 5, lines 38-56).

Raz fails to disclose finding the control targets to which the file is to be output from the file name and selecting from the control targets that are found, the control target other than the control target used by the upper control terminal means.

In an analogous art, Dixon teaches a server system (fig. 1) wherein multiple copies of files are stored on several hard disks (wherein each hard disk stores a complete, single copy, col. 2, lines 48-65), and user access requests for a particular file are processed by finding the hard disks which contain a copy of

the requested file and allocating a unused hard disk to fulfill the user request (col. 3 line 36 – col. 4 line 11), for the benefit of allowing multiple users to concurrently access the same file (as having multiple available copies of a file allows multiple users to concurrently access each copy independently, col. 4, lines 14-18).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz to include finding the control targets (hard disks) to which the file is to be output from the file name and selecting from the control targets that are found, the control target other than the control target used by the upper control terminal means (an unused hard disk), as taught by Dixon, for the benefit of allowing multiple upper control terminals to concurrently access the same file.

Regarding claims 98, 104, 110, and, 115, Raz and Dixon disclose the apparatus and method of claims 97, 103, 109, and 114, wherein the management means issues a second control command indicating permission of use to the upper control terminal means which issued the first control command to the selected control target (Raz, col. 6, lines 16-21).

Regarding claims 102, 108, 113, and 118, Raz and Dixon disclose the apparatus and method of claims 97, 103, 109, and 114, wherein the management means has the first control command inputted thereto, finds a storage device in which the file is stored from the file name included in the first



control command (the control command is a "file access request", col. 5, lines 38-56, and thus includes the file name, which is then used to locate the storage device in which the file is stored, col. 7, lines 5-10), and finds the control target connected to the storage device from the storage device that is found, thereby finding the control target to which the file is to be outputted (an inherent feature, as there must be an input means accepting data from the disk storage 14 shown in fig. 1 which then routes the data onto the appropriate communication channel 13(b)-13(n) for communication to the requesting host processor).

Regarding claims 111 and 116, Raz and Dixon disclose the apparatus and method of claims 109 and 114, wherein when the upper control terminal means which issued the first control command has not issued the reservation command to the control target of the control targets found, the management means selects the control target other than the control target for which another one of the upper control terminal means issued the reservation command, of the control targets that are found (Dixon teaches selecting an unused disk, col. 3, lines 53-56).

Regarding claims 112 and 117, Raz and Dixon disclose the apparatus and method of claims 111 and 116, wherein the management means issues a second control command indicating permission of use to the upper control terminal means which issued the first control command to the selected control target (Raz, col. 6, lines 16-21).

19. Claims 99-101 and 105-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raz and Dixon as applied to claims 97 and 103 above, and further in view of Dewey.

Regarding claims 99 and 105, Raz and Dixon disclose the apparatus and method of claims 97 and 103, but fail to disclose when all the control targets found are used, the management means selects the control target having the lowest priority of the control targets having the priority of permission of use of the control target included in the first control command of the upper control terminal means which is lower than the priority included in the first control command, of the control commands that are found.

In an analogous art, Dewey teaches utilizing priority information associated with work units for reassignment (col. 1 line 59 – col. 2 line 18 and col. 2 lines 33-39), as when a new work unit [equivalent to the claimed control command] is received with an associated priority (each work unit has a priority associated with it, as recorded in the work unit table, col. 4, lines 47-57), and in the event that there are no idle processors [equivalent to the control targets] available to accommodate the new work unit, the work unit with the lowest priority among the group of available work units that can be replaced is “bumped” in favor of the new work unit (col. 5 line 41 – col. 6 line 10), providing the benefit of optimized resource usage in a computing system (col. 1, lines 59-65).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz and Dixon to include selecting the control target having the lowest priority of the control targets having the priority of permission of use of the control target included in the first control command of the upper control terminal means which is lower than the priority included in the first control command, of the control commands that are found, as taught by Dewey, for the benefit of optimized allocation and usage of control targets.

Regarding claims 100 and 106, Raz, Dixon, and Dewey disclose the apparatus and method of claims 99 and 105, but fail to disclose the management means issues a third control command requesting open use of the control target to the upper control terminal means using the selected control target.

Examiner takes official notice that it is notoriously well known in the art to issue requests to unlock a resource from lock management systems to the device which has ownership of the lock prior to releasing a lock. Devices with lock ownership of a resource use the resources for various purposes, and in those events that a lock is to be reassigned, the lock management system sends a request to release a lock to the owner of the lock, allowing the owner to finish whatever immediate tasks that are being performed using the resource prior to sending a lock release message back to the lock manager. This prevents

catastrophic errors that would otherwise occur if the lock manager reassigned locks without first notifying the owner and waiting for a lock release command.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus and method disclosed by Raz, Dixon, and Dewey to include issuing a third control command requesting open use of the control target to the upper control terminal means using the selected control target, for the benefit of alerting the upper control terminal means using the selected control target of reassignment to take place, allowing the upper control terminal means to respond accordingly.

Regarding claims 101 and 107, Raz, Dixon, and Dewey disclose the apparatus and method of claims 100 and 106, wherein when a fourth control command requesting open use of the control target (Raz, release of lock by host processor, col. 6, lines 22-26) based on the third control command (as described above) is inputted, the management means issues a fifth control command indicating permission of use to the upper control terminal means which issued the first control command (Raz, granting of the new lock, col. 6, lines 16-21).

### ***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. et al. (6,044,404).

Art Unit: 2611

21. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on (571) 272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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